confounding factors, multivariate analysis show that LFLG AS was independently associated with reduced long-term survival: HR= 2.02; 95 CI: (1.31-3.15) p=0.002. Patients who underwent AVR had significantly better long-term survival than those who were managed medically (70 pts) (all p< 0.001) in all our 4 groups of severe AS patients irrespective of the gradient or flow.

Conclusion: Our cardiac catheterization-based study confirms that LFLG severe AS is a frequent entity associated with poor both short- and long-term outcome. Of interest, AVR seems to be a beneficial therapeutic option, even in patients with LFLG pts.

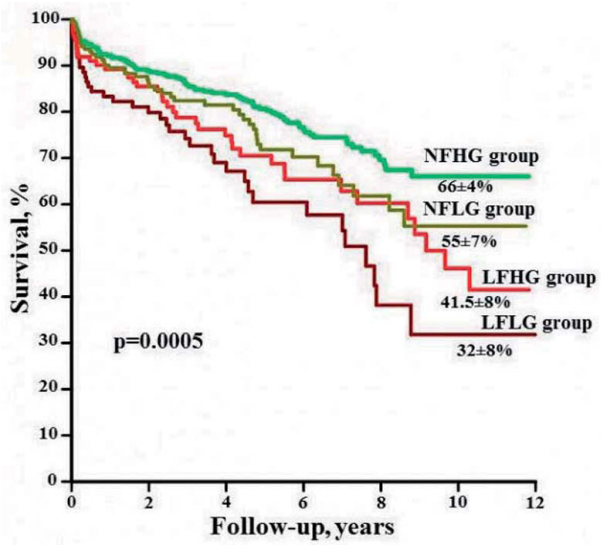

Figure – Survival KM curve

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Various serum biomarkers express multiple processes leading to calcific aortic stenosis

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Background: Calcific aortic stenosis (CAS) is seen in a large proportion of individuals after 60 years (yrs). Various biomarkers (BMs) are studied, as regards mechanisms, diagnosis and prognosis. We studied some pertinent markers expressing divergent processes.

Patients-Methods: We prospectively studied the following BMs in 60 pts with CAS and compared them to 20 C free from any cardiac disease: Fetuin-A (Fet), a calcification inhibiting glycoprotein, Sclerostin (SOST) and OPN, calcification markers, metalloproteinase-2 (MMP-2) which promotes collagen degradation, Tenancin C a tissue collagen formation protein, and IL-2 and TNFa, inflammatory markers. Mean±SD of pts vs C was assessed.

Results: The age of pts with CAS was higher than than that of C (66.1±12.5 vs 34.4.0±7.5 yrs, P<0.001). As regards BMs in CAS pts Fet was not different from C (476.0±118.0 vs 481.1±83.03 µg/ml, NS); SOST was significantly higher (2.59±0.79 vs 0.8±0.43 ng/ml P<0.005), as well as OPN (23.02±11.6 vs 17.26±5.5 ng/ml P=0.019). MMP-2 was also higher (8.65±1.67 vs 0.48±0.22 ng/ml, P<0.001), as well as Tenascin C (67.1±25.9 vs 48.03±24.9 ng/ml, P<0.001); IL-2 (968.2±399.5 vs 755.7±118.6 pg/ml, P=0.001) and TNFa (16.23±11.8 vs 2.75±3.3 pg/ml, P<0.0001). Additionally, preliminary findings show that Toll-like-receptors (TLR) are increased: TLR2 19.5±1.0, 10pts vs 0.6±0.2 ng/ml, 4 C, (p<0.001), and TLR7 36.6±5.4 vs 0.6±02,(p<0.03).

Conclusions: We found that many BMs expressing calcification, collagen breakdown and formation and inflammation are increased in the serum of pts with CAS as compared to controls. These data may contribute towards diagnosis, prognosis and potential treatment of this entity.

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Assessment of doubtful aortic stenosis by measuring simultaneous transaortic pressure: A pilot study with fractional flow reserve guidewire

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Background: Transthoracic echocardiography (TTE) is the reference technique for evaluating aortic stenosis (AS), but in certain cases, estimation of the average gradient and aortic valve area can be difficult. We aimed to assess the feasibility and utility of measuring simultaneous transaortic pressure using a fractional flow reserve (FFR) guidewire in doubtful aortic stenosis.

Method: Between January 2009 and December 2011, 57 patients with symptoms possibly related to severe AS that was poorly evaluated by echocardiography underwent right and left heart catheterization for assessment of aortic valve area with the Gorlin & Gorlin formula. Transaortic pressure was obtained by 2 invasive methods, namely conventional pullback method from the left ventricle (LV) towards the aorta (PM) with subsequent computerized superposition of the pressure curves, and (2) simultaneous method using a FFR wire introduced into the LV (SM).

Results: Reasons for inaccurate assessment by echocardiography were atrial fibrillation (75%) and/or low LV ejection fraction (38%). Results of evaluation of mean aortic valve gradient and aortic valve area are summarized in the table below. Agreement between methods (using the kappa coefficient) for severe aortic stenosis defined by an aortic-valve area < 0.6 cm²/m² was 0.36 between SM and PM, 0.07 between SM and TTE, and –0.12 between PM and TTE. These findings led to a decision to change therapeutic strategy in 8 patients (14%).

Conclusions: Simultaneous measurement of trans-aortic pressure using a FFR guidewire is feasible and may be an attractive and accurate method for evaluation of doubtful aortic stenosis.

Table – Results

	SM	PM	TTE
Mean aortic valve gradient, mmHg	30.5±14.4	23.6±9.9	28.8±8.0
p vs PM	<0.0001	–	0.0002
p vs TTE	0.241	–	–
Aortic valve area, cm/m²	0.46±0.2	0.48±0.15	0.49±0.1
p vs PM	0.003	–	0.529
p vs TTE	0.074	–	–

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Lipoprotein-associated phospholipase A2 prior to aortic valve surgery as independent predictor of associated coronary heart disease

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Background: Coronary artery disease (CAD) can be associated with aortic stenosis (AS). Conventional coronary angiography (CCA) is the best method for ruling out significant CAD when surgery is planned. However, significant percentage of patients had normal coronary arteries. New non invasive methods are needed to select patients undergo CCA and reduce risks of this invasive exam.